UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/033,338	12/28/2001	Sridhar Gollamudi	5-20	7159

7590 04/07/2006		

Docket Administrator (Room 3J-219)
Lucent Technologies Inc.
101 Crawfords Corner Road
Holmdel, NJ 07733-3030

EXAMINER
AGHDAM, FRESHTEH N

ART UNIT	PAPER NUMBER
2611	

DATE MAILED: 04/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>30 January 2006</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4,7,10-13 and 16-20* is/are rejected.

7)☒ Claim(s) *3,5-6,8-9,14-15* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a)☐ All   b)☐ Some * c)☐ None of:

         1.☐ Certified copies of the priority documents have been received.

         2.☐ Certified copies of the priority documents have been received in Application No. _____.

         3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
     Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
     Paper No(s)/Mail Date. _____ .
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set

forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this

application is eligible for continued examination under 37 CFR 1.114, and the fee set

forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action

has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on

1/30/2006 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 11, 16, and 19 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Razavilar et al (US 2003/0104831), and further in view of Nanda et

al (US 5.842,113).

As to claims 1, 16, and 19-20, Razavilar teaches an adaptive quality control loop

for a rate adaptation based on modulation and coding scheme (MCS) levels and

multiple spreading codes comprising adjusting the nth iteration channel condition

threshold 412 based on the nth iteration error detection result 410 for the nth iteration

data packet transmission between a transmitter and a receiver 620 using the nth

variable step 612 and 614 responsive to the error detection portion, wherein the nth

channel condition threshold is associated with the nth modulation and coding scheme

level used in the first data packet transmission (Fig. 4 and 6; Pg. 8, Par. 72, 73, 77, and

79). Razavilar is silent about the step size being a variable size step (i.e. Razavilar

discloses a variable step (+/-1)). Nanda teaches adjusting the channel condition

threshold based on an error detection result for a data frame transmission between a

transmitter and a receiver using a variable size step, wherein the second amount used

for the adjustment of the channel condition threshold could be equal to the first amount

depending on the error detection result (Fig. 5-7; Col. 3, Lines 50-67; Col. 4, Lines 1-50;

Col. 5, Lines 1-20 and 49-67; Col. 6, Lines 1-39). Therefore, it would have been obvious

to one of ordinary skill in the art to combine the teaching of Nanda with Razavilar in

order to deal with the inefficient use of power problem and the error rate problem by

responding to changes in the frame error rate more quickly than prior base station

transmitters (Col. 4, Lines 43-50).

As to claim 11, Nanda further teaches that the first variable size step is

associated with a first variable size up step and a first variable size down step, the first

channel condition threshold being increased an amount based on the first variable size

up step if the first error detection result indicates the first data transmission was

unsuccessful, the first channel condition threshold being decreased an amount based

on the first variable step size down if the first error detection result indicates the first

data transmission was successful (Fig. 3 and 5-7; Col. 3, Lines 50-67; Col. 4, Lines 1-4).

Claims 2, 7, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Razavilar et al and Nanda, further in view of Shibutani (US 2002/0193133).

As to claim 2, Razavilar and Nanda teach all the subject matters claimed above, except for the step of adjusting the first channel condition threshold comprising of determining the first variable step by using a desired MCS (i.e. Modulation and Coding Scheme) error rate for the first MCS level. Shibutani, in the same field of endeavor, teaches determining the maximum data rate corresponding to the given error performance of the received signal for a specific MCS level (Fig. 4, Pg. 5, Par. 50 and 64). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teaching of Shibutani with Razavilar and Nanda in order to achieve maximum data throughput in communication systems (Pg. 5, Par. 50).

As to claims 7 and 12, Razavilar and Nanda teach all the subject matters claimed above, but do not expressly teach that the desired MCS error rate of the first MCS level being based on a bit error rate target criterion. Shibutani, in the same field of endeavor, teaches using bit error rate as a given error performance received for a specific MCS level to determine the maximum data rate (Par. 64). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teaching of Shibutani with Razavilar and Nanda in order to achieve maximum data throughput in communication systems (Pg. 5, Par. 50).

Claims 4, 10, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Razavilar et al, Nanda, and Shibutani, further in view of Sindhushayana et al (US 2004/0202196).

As to claims 4 and 13, Razavilar, Nanda, and Shibutani teach all the subject matters as recited in claims 1 and 2 above, except for the desired MCS error rate of the first MCS level being based on a block error rate target criterion. Sindhushayana, in the same field of endeavor, teaches that the desired MCS error rate for a certain MCS level is based on a packet error rate (i.e. PER) target criterion (Fig. 3; Pg. 4, Par. 41, 42, 43, 44, 45, and 47). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teaching of Sindhushayana with Razavilar, Nanda, and Shibutani for obtaining adaptive rate selection in a wireless communication system (Pg. 2, Par. 22).

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Razavilar et al and Nanda et al, further in view of Sindhushayana et al.

As to claim 10, Razavilar and Nanda teach all the subject matters as recited in claim 1, except for the step of adjusting the first channel condition threshold comprises of determining the first variable step using a block or bit error rate target criterion and a first data rate associated with the first MCS level. Sindhushayana, in the same field of endeavor, teach the desired MCS error rate for a certain MCS level is based on a packet error rate (i.e. PER) target criterion (Fig. 3; Pg. 4, Par. 41, 42, 43, 44, 45, and 47). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teaching of Sindhushayana et al with Razavilar and Nanda for adaptive rate selection in wireless communication systems (Pg. 2, Par. 22).

Claims 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Razavilar et al and Nanda, further in view of Shibutani.

As to claim 17, Razavilar and Nanda teach all the subject matters as recited in claim 1, except for the selecting a second MCS level based on an estimation of channel condition between the receiver and transmitter using a table having the adjusted first channel condition threshold. Shibutani, in the same field of endeavor, teaches selecting MCS levels based on the corresponding adjusted channel conditions (table 2; Pg. 5, Par. 50). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teaching of Shibutani with Razavilar and Nanda in order to convert the received channel condition information into a data rate (Pg. 5, Par. 50).

As to claim 18, Razavilar and Nanda teach all the subject matters as recited in claim 1, except for transmitting a second data packet using the second MCS level. Shibutani, in the same field of endeavor, teaches transmitting different data frames using different MCS levels based on the channel condition information (Pg. 5, Par. 50 and 64).

Allowable Subject Matter

Claims 3, 5, 6, 8, 9, 14, and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

As to claim 3, the prior art of record fails to teach an adaptive quality control loop wherein the step of determining the first variable step comprises the step of updating

MCS probabilities for all MCS levels using the first error detection result; updating an

MCS error rate for the first MCS level; and determining a ratio between a first variable

up step and a first variable down step associated with the first variable step using the

updated MCS probabilities, MCS error rate and a target criterion.

As to claim 5, the prior art of record fails to teach an adaptive quality control loop

wherein the desired MCS error rate for the first MCS level is based on a block error rate

target criterion, MCS probabilities for the first MCS level and for other MCS levels, and

MCS error rate for the other MCS levels.

As to claim 6, the prior art of record fails to teach an adaptive quality control loop

by solving the equation as recited in the claim.

As to claim 8, the prior art of record fails to teach an adaptive quality control loop

wherein the desired MCS error rate for the first MCS level is based on a block error rate

target criterion, MCS probabilities for the first MCS level and for other MCS levels,

average transmitted data rates for the first MCS level and for the other MCS levels,

average rate of bit errors for the other MCS levels, and MCS error rates for the other

MCS levels.

As to claim 6, the prior art of record fails to teach an adaptive quality control loop

by solving the equation as recited in the claim.

As to claim 14, the prior art of record fails to teach the limitations for an adaptive

quality loop as recited in the claim.

As to claim 15, the prior art of record fails to teach an adaptive quality control loop wherein a ratio between the first variable up step and the first variable down step are based on a desired MCS error rate for the first MCS level.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Freshteh N. Aghdam whose telephone number is (571) 272-6037. The examiner can normally be reached on Monday through Friday 9:00-5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on (571) 272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Freshteh Aghdam   **KEVIN BURD**
4/1/2006   **PRIMARY EXAMINER**